quickly to a watery fluid, then mucus, and is either colorless or yellow. In about 25 per cent. of the cases there is a distinct fruity odor to the breath. The tongue is usually heavily coated white or brownish. Thirst is severe. The abdomen is retracted in some of the cases. Constipation is usually obstinate in the severe cases and with this there is marked distention and finally intestinal atony toward the close. In about 25 per cent. of the cases air hunger was present. Cyanosis in a minority of the cases is marked. The pulse is invariably elevated. With high temperature it may go to 160. If the blood is examined it shows the leukocytes to be from 9000 to 12,000, with a normal differential. The nervous symptoms vary. Infants may be restless, but in the majority, 64 out of 100 cases drowsiness is marked. When aroused the child is fretty and irritable. This may pass on to a condition where it is more and more difficult to arouse the child and finally unconsciousness develops. The reflexes are present and normal. Prostration is marked and the temperature is above 100° F. in the majority of cases. A temperature of 103° and 104° is not uncommon. Of 3 fatal cases 1 had a temperature of 101°, 1 a temperature of 100°, and 1 a temperature of 99.8° F. In the majority of cases there is some evidence of involvement of the respiratory tract, coryza or bronchitis. Respirations are rapid, and in the late stages sighing, and the Cheyne-Stokes type. Dyspnea is pronounced and all the muscles of respiration are brought into play. In very many cases the urine is clear and in about 50 per cent. is scanty in amount. The reaction is acid. The specific gravity varies between 1010 and 1030. In the majority of cases no albumin is found, though in the minority there is a faint trace. In about 90 per cent. of one series of cases acetone was found at first test practically at the beginning of the acute symptoms, which leads to the belief that acidosis of this type is not a sequel of persistent vomiting and starvation. Acetonuria never ceased while the urine was still acid; it tended to persist for several days after the urine became alkaline, especially if the diet were scanty; but in such event the patient showed no toxic symptoms, but if the urine were allowed to revert to former acid conditions, toxic symptoms were likely to recur. Acetonuria was of little moment, then, if alkalinity of urine could be procured." Pneumonia, otitis media and nephritis were complications that were noted. The diagnosis was made on the test of the urine and the symptoms enumerated above.

OBSTETRICS

UNDER THE CHARGE OF

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Puerperal Gangrene of the Extremities.—STEIN (*Surg., Gynec. and Obst.*, October, 1916) contributes an interesting paper upon this subject in which he cites reported cases and contributes two. His first case

was that of a woman, aged twenty years, in apparently good general health. She was about three months pregnant. The pelvic organs were apparently normal and it was suspected that the patient had become infected. Shortly after admission to the hospital a three months' abortion occurred with foul odor from the fetus and from the vagina. The next day the temperature became normal but in the evening rose to 105° F. During the next six days the patient's temperature varied from 104° to 105° F. without pain and other symptoms. On the seventh day examination showed numerous grayish white superficial ulcers around the cervix covered with whitish membrane. Some placental tissue was removed by a curette and the interior of the uterus was swabbed with tincture of iodin. This was repeated for the next seven days. The temperature remained between 101° and 102° F. Seven days after the curetting the patient complained of pain in the right leg and three days later the right leg and foot became cold and swollen with bluish discoloration. The foot was extremely painful to touch and the pulsation of the dorsalis pedis artery could not be felt. The whole foot became gangrenous. A line of demarcation formed and amputation had to be done below the knee. The heart remained normal. Several blood cultures showed no growth. The Wassermann test was negative. On examining the amputated tissue there was no thrombus in the anterior tibial or the dorsal artery of the foot. At the termination of the perineal artery there was a thrombus in the necrotic muscle and there were thrombi in the veins. In the literature this is the fourth case on record where gangrene has followed abortion. In all of the other cases there was a vegetable endocarditis. The second case was one of labor at full term in a primipara, aged nineteen years, who was in good general condition. The Wassermann reaction was negative. Delivery was effected by a median application of the forceps and laceration repaired with chromic catgut suture. Two days afterward there was a slight chill with temperature of 104.5° F. There were ulcerations around the cervix and in the urine were found albumin and hyaline casts. The lacerated area sloughed and the tissues were removed. The patient's fever continued although the heart remained in good condition. Twelve days after confinement the patient insisted on leaving the hospital. She returned seven days later or nineteen days after confinement with a rigid abdomen, temperature 102° to 104° F. and pulse 110. Both feet were gangrenous about 4 inches above the ankles and a line of demarcation gradually formed. There was no pulsation in the femoral arteries. Blood cultures were negative. The patient's condition did not permit operation and on her death no autopsy could be obtained. The writer believes that in the second case the thrombus from the uterus passed through the uterine artery and thence into the circulation to the bifurcation of the aorta and occluded both iliacs, thus causing gangrene on both sides. In the first case after abortion it is thought that the venous obstruction occurred first and that the artery became later occluded. The writer has collected cases from the literature of gangrene after childbirth abortion, during pregnancy and after gynecological operations. He adds a case contributed by Lilienthal, of New York. This patient, aged twenty-eight years, thirteen years previously had an abortion

followed by septic infection. She had subsequently been operated upon for dysmenorrhea and four months before entering the hospital the appendix and right ovary had been removed and ventral suspension had been performed. An exploration of the upper abdomen was made at this time. Ten days after this operation there was sudden pain and tingling in the ends of the fingers of the left hand. Two days later dry gangrene of the fingers and end of the thumb developed. The patient had lost weight and when admitted to the hospital was in a much depressed condition. She had severe gastric symptoms and there was stomatitis and vaginitis which gradually disappeared with cleanliness. All four fingers of the left hand were practically mummified. The urine was normal. There was no pulse in the left radial artery and none in the brachial until near the axillary where feeble pulsations could be made out. The heart sounds were normal. Blood-pressure was 87 and 114. Under nitrous oxide and oxygen anesthesia the fingers were amputated and several spurting vessels had to be tied. No flap operation was made and the thumb was not operated upon. Wassermann test showed + + reaction. The patient grew steadily worse and the roentgen ray showed obstruction in the upper part of the jejunum. Entero-enterostomy was performed and vomiting ceased. The patient gradually failed and died. There were no signs of peritonitis. At autopsy there was a patch the size of a quarter of a dollar in the aorta close to the ventricle and adherent to this was an organized clot, part of which had undoubtedly broken off and clogged the brachial artery. On examination aortitis was present and in view of the positive Wassermann findings syphilis suggested itself as the possible cause. In 53 of the cases the lower extremities were both affected fifteen times; the left, sixteen; the right, fifteen. In 1 case both hands, both feet, the tip of the nose and portions of the ears were gangrenous. In 2 cases there was gangrene of an arm and a leg. After abortion there were 3 cases of gangrene of the lower extremities and 1 in which both were affected. Gangrene in the upper extremities in puerperal cases is comparatively rare as but 10 cases are reported. After gynecological operations but 5 cases were collected. These had all been abdominal sections. In most of the cases some lesion of the heart or vessels was present and very rarely a patent foramen ovale seemed to be the cause. Typhoid fever, pneumonia and pleurisy preceded gangrene in some cases. Puerperal fever and obliterative endarteritis were present in 1 case and severe puerperal sepsis treated by abdominal hysterectomy was present in another. General septic infection occurred but rarely and pyemia but once. In 6 cases gangrene complicated eclampsia and in 2 puerperal mania. Some of the cases occurred suddenly and without known cause and there seemed to be no connection between the general health of the patient, the type of labor and the occurrence of gangrene. So far as prevention is concerned whatever brings the patient into good general condition at the time of labor is certainly indicated. Aseptic precautions for the patient and antiseptic precautions for doctors and nurses are imperative. At labor hemorrhage should be prevented and the circulation disturbed as little as possible during obstetrical operations. When the condition develops and the patient is sufficiently strong to endure the operation, amputation must be promptly performed.